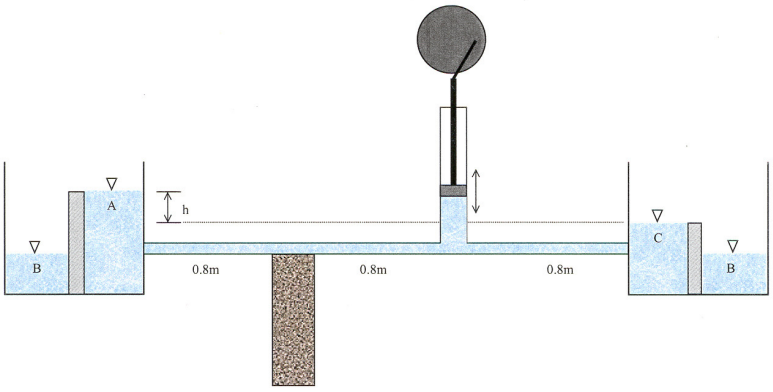
Sandia National Laboratories

Development of Flume with Oscillatory Flow Superimposed over a Unidirectional Flow

Description

Sandia National Laboratories has developed a high-shear stress flume for Coastal Hydraulics Laboratory. This flume creates a unidirectional flow regime, which has limitations in applicability to wave-dominated environments. A modification to the flume will be made which will facilitate oscillatory currents superimposed over a unidirectional current.



Schematic of Oscillatory Flume

Purpose

The new development will enhance the capabilities of the flume to perform high-shear stress erosion experiments in coastal waters where wave forcing can be quite important. Water will be pumped from tank B to tank A in order to maintain the desired Δh. Also, the Δh between tank A and tank C will be adjustable. The oscillating piston will be controlled by a stepper motor such that the velocity and period can be adjusted.

**Research supported by the U.S. Army Corps of Engineers Coastal and Hydraulics Lab*

Contacts

Richard Jepsen
Carlsbad Programs Group
4100 National Parks Highway
Carlsbad, NM 88220
Phone: (505) 284-2767
Fax: (505) 234-0061
Email: rajepse@sandia.gov

Jesse Roberts
Carlsbad Programs Group
4100 National Parks Highway
Carlsbad, NM 88220
Phone: (505) 284-2710
Fax: (505) 234-0061
Email: jdrober@sandia.gov

Sandia is a multiprogram laboratory operated by Sandia corporation, a Lockheed Martin Company, for the United States Department of Energy under contract DE-AC04-94AL85000.
SAND2001-1219P

Sandia National Laboratories